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THE PLANT DISEASE REPORTER

Issued By

THE PLANT DISEASE SURVEY

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U. S. DEPARTMENT OF AGRICULTURE

Division of Mycology and Disease Survey
BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING
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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY
DIVISION OF MYCOLOGY AND DISEASE SURVEY

Plant Industry Station Beltsville, Maryland
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LOSSES FROM POTATO LATE BLIGHT ON THE FALL CROP IN FLORIDA

G. R. Townsend

In a previous report (PDR 30: 448) the early appearance of potato late blight (Phytophthora infestans) in the Everglades was noted. Subsequent developments have been such that this area has suffered a severe epiphytotic of late blight. Few growers were prepared for the terrific onslaught that occurred. The disease was well developed in many fields by November 1 when a minor tropical disturbance accompanied by a rainfall of four to eight inches provided optimum conditions for dissemination and infection. Because of wet fields and windy weather several days elapsed before growers could apply fungicides. The early use of copper-lime dust or Dithane spray had very noticeable effects in checking the first wave of infection following the storm. Some growers lost the battle at this time because they could not apply fungicides soon enough or had insufficient equipment to cover their entire crop within three days after the storm. Although the results with all fungicides have been poor, Dithane-zinc-lime sprays and 30-70 copper-lime dusts, properly timed and in sufficient quantity, were of material value. Bordeaux and Zerlate sprays failed in several instances.

The vines were dead by November 25, in fields where the spray program was faulty. Only a few fields remained green after December 10. Another heavy rain on December 13 contributed to the final blighting of all but three or four fields in the area. These were fields that had been thoroughly sprayed with Dithane one or two days before the rain. Tuber rot due to late blight has not been of much importance to date except in one or two of the fields that blighted early in November.

The prospective crop has been reduced by about 75 percent, due in part to direct loss from water damage but mostly from late blight infection. Some of the fields that blighted early will not be dug because there were too few potatoes to pay for the cost of digging them. The average production will fall between 50 and 100 bushels per acre, with about 40 percent in the U.S. No. 1 grade. A few of the better sprayed fields will produce about 150 bushels per acre.

The disease has now been reported from the Fort Myers area on both potatoes and tomatoes. It also has been observed here on wild and cultivated tomatoes.

BOX 505
BELLE GLADE, FLORIDA
DECEMBER 18, 1946

BEAN DISEASES IN SOME OF THE INTERMOUNTAIN STATES IN 1946

W. J. Zaumeyer and H. Rex Thomas

As in 1944 (PDR 29 (5): 144-149. Feb. 15, 1945) and 1945 (PDR 30 (4): 97-105. Apr. 15, 1946) a disease survey of the important bean-growing areas of Colorado, Wyoming, Montana, and Idaho was again made in 1946. This survey was conducted during August. Fewer fields of both the garden and dry bean varieties were visited than in former years but the observations reflect in general the disease conditions throughout the different areas.

Colorado

Weld County

Bacterial Blights (Xanthomonas phaseoli and Pseudomonas phaseolicola). These two diseases were of minor importance from the standpoint of the total bean acreage, whereas in 1945 they caused more damage than they had since 1937. There was more acreage of the Pinto bean planted with local-grown seed this year than in former years and in only a few such fields was Xanthomonas phaseoli widespread. Where seed of Idaho or Wyoming origin was used, blight was not commonly found except where such fields were in close proximity to other blighted fields of local seed origin, and the infection was of secondary nature.

The difference in amount of infection in 1946 compared with 1945 is probably due to variations in environmental conditions in these two years. In June 1945, the total rainfall was 2.52 inches (+0.99) falling on 11 days, while in June 1947 it was 0.50 inch (-1.05) which fell on only two days. The mean temperature for June 1946 was 67.6° F., which was 4.6° F. higher than for June 1945. In July 1945 the rainfall was 2.04 inches (+0.38) falling on 9 days and in August 1946 it was 1.01 inches (-0.66) falling on 4 days. The mean temperature for this month was 71.2° F. in 1945 and 74.4° F. in 1946. In August 1945 the precipitation was 2.00 inches (+0.90), while in 1946 it was 1.08 inches (-0.03). The mean temperature for the month was 71.2° F. in 1945 and 70.8° F. in 1946.

As in 1945, soil-borne blight infection was again demonstrated. It was noted in a fairly large field of Pinto beans. This field had been in beans the previous year and had shown some infection in 1945. The seed that was planted this year was of southern Idaho origin and known to be blight-free as the fields that produced this seed were examined by the writer in 1945. During the past season, most of the plants in the blighted field were infected, while other acreages of identical seed source planted in the same general area showed no infection.

Similarly, 1945 Greeley-grown seed planted on this same farm, but at some distance from the blighted field, showed very little infection. It is likely that only a small percentage of plants became infected from the soil and that secondary spread due to a driving rain in late July accounted for most of the infection.

A trace of wilt, Corynebacterium flaccumfaciens, was found in a field of Pinto beans. The symptoms of the infected plants were similar to those produced by Xanthomonas phaseoli and it was only through isolation that the identity of the organism was determined.

Rust (Uromyces phaseoli var. typica). Bean rust was of very minor importance. Traces of infection were found in a few fields causing no crop loss. In one field in Morgan County heavy infection was noted.

Sclerotinia Wilt (Sclerotinia sclerotiorum). Although this disease was observed for the first time in one field in 1944, it has not been noted since then.

Anthracnose (Colletotrichum lindemuthianum). This disease was not observed.

Virus Diseases. Common bean mosaic (bean virus 1) was widespread in a few fields of Pinto beans but in general it was of minor consequence. A considerable portion of the acreage was planted with seed that was rogued for mosaic in 1945. In most of these fields the virus was not widespread and was only noted, to any extent, along the edges of the field.

Greasy pod was not commonly found in commercial acreages but was serious in several seed lots in the experimental plots at Greeley.

Yellow bean mosaic (bean virus 2), as in former years, was not common. A small percentage of infected plants was found along the edges of certain fields in proximity to sweetclover plants.

Black root. This condition, reported as a virus by W. A. Jenkins from Georgia in 1940, was noted on two plants of a hybrid bean in the U. S. experimental plots at Greeley. About five years ago many of the hybrid beans (Full Measure x U. S. No. 5 Refugee) in similar plots at the Station showed this same condition. It was noted only on a single plant of a commercial variety, a strain of Blue Lake. It is of interest that this virus failed to make its reappearance until this year although these same hybrids had been grown each season since that time in the same general location.

Physiological Diseases. A condition similar to that noted in 1944 (PDR 29: 145), but not so serious, was again observed in the

Pinto acreage. This was reported as possibly being caused by an excessive salt concentration in the soil. The leaves first show a reddish spotting and later become chlorotic and die. This occurs about podding time and as a result the plants ripen prematurely, with consequent reduced yield. This condition was quite widespread over the area.

La Plata and Montezuma Counties

Bacterial Blights. Halo blight (Pseudomonas phaseolicola) was quite widespread in the experimental bean plots at Fort Lewis in La Plata County. The infection appeared to originate from two bean lots that had been grown in southern Idaho in 1945, and had spread to other varieties growing in the same plot. A trace of the disease was noted in these same lots growing in Idaho last year. In 1944 the seed was produced in Colorado where the disease was also observed. Although it is known that neither of the blights is of commercial importance in Southern Idaho, it is apparent from this, as well as other observations, that more than one year is required to eliminate blight infection completely in Idaho from bean stocks carrying the disease.

A trace of Xanthomonas phaseoli was observed in one field of No. 5 Pinto grown under dry land conditions in Montezuma County. This seed was produced in this same area in 1945 where the disease was not observed but apparently was overlooked. Previous to that it was grown in northeastern Colorado where it was definitely known to carry infection. It was assumed that because of the low rainfall during the growing season in this area the disease could be eliminated from the stock in one season, but as with southern Idaho, it appears that at least two or more years will be required for complete elimination. The disease was not observed and has never been reported in acreages planted with local-grown seed which has been in the territory for many years.

Rust and Anthracnose. These diseases were not observed.

Mosaics. Only a trace of bean virus 1 was noted. In small plantings in La Plata County, greasy pod was serious in a number of green-podded bush varieties, but very little was seen on wax or pole varieties. In Montezuma County only a trace was observed in an acreage of Full Measure grown under irrigation. The symptoms were very difficult to diagnose on garden beans grown without irrigation because of considerable leaf curling due to dry weather. Yellow bean mosaic was not observed. In the past two years the virus diseases have been of very minor consequence.

Wyoming

Big Horn, Park and Fremont Counties

Bacterial Blights. In Park County halo blight was observed in several fields of the garden varieties showing serious infection. In others only a trace of the disease was found. It was evident that where beans were planted on land that had not grown this crop the previous year and the seed used originated from blight-free areas, little infection was noted. Several of the seriously infected fields were reported to have grown beans in 1945. Common blight was more widespread than in previous years, but was not causing an appreciable crop loss. Normally the temperatures in these counties are not sufficiently high for development of the organism, but during June and July of the past season the mean temperatures were higher than normal. In some cases the infection was internal, showing only slight outward symptoms thus making it difficult to detect. In Big Horn and Fremont Counties only a trace of common blight was noted. In the latter County, however, a small amount of bean wilt, Corynebacterium flaccumfaciens, was noted in a field of Great Northern beans. The symptoms were not typical of this disease as described as no wilting was observed. The leaf symptoms were somewhat similar to those produced by Xanthomonas phaseoli. Only a very slight watersoaking of the ventral suture of the pods was observed; but when these pods were opened, seriously infected seeds were found. It was reported that the seed originiated from a blight-free area in 1945 and the present crop was on land that had not grown beans the previous year.

Rust. Although this disease was serious in Park and Big Horn Counties in 1944 and 1945, only a trace was observed in the State this year. Most of the fields were dusted with sulfur and this together with unfavorable conditions for development of the organism apparently prevented it from becoming widespread.

The critical period for rust to become established and to produce an epidemic is the month of June and the early part of July. In June of 1946, the precipitation was only 0.92 inch (-0.29) falling on 5 days, while in the same month of 1945 it was 1.97 inches (+0.80) falling on 11 days. In June 1944 when rust was also serious the precipitation was 3.41 inches. The mean temperature for June 1946 was about 6° F. higher than for June 1945. The precipitation in July 1946 was 0.57 inch (-0.06) while in July 1945 it was 0.63 inch (-0.01) all of it falling in the first 15 days of the month. The mean temperature for July 1946 was 71.6° F. (+1.4) which was one degree higher than for July 1945. In August 1946 the precipitation was 0.39 inch (-0.10) falling on 3 days, while in August 1945 it was 0.96 inch (+0.47) falling on 9 days. The average monthly temperature was about one degree higher in 1945 than in 1946.

Sclerotinia Wilt. This disease was again quite common in Great Northern beans especially in Park County. None was found in Fremont County. The prevalence of the disease appears to be increasing each year.

Anthracnose. The disease was not observed.

Virus Diseases. Bean Virus 1 was not widespread in Park and Big Horn Counties as most of the acreage consisted of mosaic-resistant varieties. In certain fields of Pinto in Fremont County it was very serious causing a considerable crop reduction. Red node (virus) was found in several fields of Great Northern but was of minor importance. Yellow bean mosaic was not commonly observed. What appeared to be the strain of bean virus 1 reported on U. I. No. 15 Great Northern in Idaho last year (PDR 30: 105) was noted in one field of this variety.

Montana

Carbon and Yellowstone Counties

Bacterial Blights. In parts of Yellowstone County, especially in the vicinity of Huntley, common blight was very widespread. A hail occurred in July which apparently was responsible for most of the secondary spread. In an acreage of garden beans at the Huntley Experiment Station 100 percent of the plants were infected. In the southern part of Yellowstone County and in Carbon County the disease was noted but was not widespread. It was reported in about 10 percent of the fields in one section of Carbon County.

Rust. As in Wyoming, only a trace of the disease was noted, while in 1944 and 1945 it was very serious. Sulphur dusting and unfavorable climatic conditions for rust development accounted for its not being widespread.

As in Wyoming, the precipitation for June and July of 1946 was lower than it was in the same months of 1944 and 1945. This apparently prevented the organism from becoming established. In June 1946 the precipitation was 1.6 inches (-0.52) which fell on 5 days, in June 1945 it was 3.51 inches (+1.71) falling on 18 days, and in 1944 it was 7.64 inches (+6.52). In July 1946 the precipitation was 0.34 (-0.52) falling on 3 days, in 1945 it was 0.83 inch falling on 7 days, and in 1944 it was 1.29 inches. In August of 1946 the rainfall was 0.36 inch (-0.35) falling on 3 days, in 1945 it was 1.11 inches falling on 4 days and in 1944 it was 0.97 inch.

Anthracnose. None was observed.

Sclerotinia Wilt. This disease was noted in a few fields of Great Northern beans.

Virus Diseases. Bean virus 1 was of minor importance since most of the acreage is planted with the mosaic-resistant varieties. Traces of bean virus 2 and red node were found in fields of Great Northern. In one small field of Pinto beans, bean virus 2 was very widespread.

Physiological Diseases. What appeared to be the same condition that was observed in Colorado was noted in a number of fields of Great Northern beans.

Idaho

Twin Falls and Minidoka Counties

Bacterial Blights. Traces of halo blight were noted in a few plantings. The seed lot of one of the plantings was of Idaho origin and was the same as one of the lines in which blight was observed in La Plata County, Colorado. Traces of common blight were also found in several small plots of Kentucky Wonder. The seed of these lots was produced in the Middle West in 1945.

It is quite evident that the unimportance of the bacterial blights is due to low rainfall. In June 1946 the precipitation was 0.37 inch, in July 0.15 inch, and in August 0.17 inch. The total for the three months was 0.69 inch compared with 2.59 inches for Colorado, 1.88 inches for Wyoming and 2.30 inches for Montana. In 1945 these differences were even more marked. The total rainfall for Idaho was 1.25 inches, for Colorado 6.56 inches, for Wyoming 3.56 inches, and for Montana it was 5.21 inches. In general the mean temperatures during the growing season are similar for all these areas.

Anthracnose and Rust. These diseases were not observed.

Virus Diseases. Bean virus 1 was fairly widespread in certain fields of Pinto in the Burley section. In other sections where much of the acreage is of the Great Northern type little was noted since practically all of this acreage consists of the resistant strains. Although the virus was found in the garden bean acreage it was difficult to determine definitely the amount present in the fields. The presence of other viruses such as bean virus 2 and greasy pod in the same fields made the separation in some cases difficult.

Yellow bean mosaic was extremely widespread and in many small plantings this disease was so serious that in some cases 100 percent of the plants were infected, with considerable yield reduction. In the larger commercial fields the disease was usually restricted to the edges of the fields in close proximity to mosaic-infected sweetclover growing along ditch banks and fence rows. This virus, considered one of the non-persistent types, is usually not transmitted for long distances by aphids. Small fields are subject to aphid infestation more readily

than larger fields, and accordingly show much higher percentages of diseased plants. No variety was observed to be resistant to this virus.

Greasy pod, which was quite widespread in 1944 and in 1945, did not appear to be so serious as in former years. It was found in a number of fields of garden varieties that are not resistant to bean virus 1. All those resistant to the latter virus appear to be resistant to greasy spot.

Only a trace of red node virus was observed.

Curly top was of very minor significance.

Black root. This disease was found in several fields but appeared to be restricted to certain varieties and hybrids. In one planting from 10 to 100 percent of the plants were affected, resulting in the death of the plants in many cases. The following varieties or hybrids were affected:

Varieties

1. Alabama Pole
2. Blue Lake, Early
3. Blue Lake, Stringless
4. Florida Belle
5. Idaho Refugee
6. Kentucky Wonder
7. Logan
8. McCaslan Pole
9. Pioneer
10. Potomac
11. St. Louis Perfection
12. U. S. No. 5 Refugee
13. White Creaseback
14. Rival

Hybrids

1. Brittle Wax x Pioneer
2. Full Measure x Curly-top-resistant selection
3. Giant Stringless Green Pod x Logan
4. Logan x Commodore
5. Logan x Tendergreen
6. Five strains of Full Measure x U. S. No. 5 Refugee

The disease was not observed on the other commonly grown bush garden varieties, such as Bountiful Black Valentine, Brittle Wax, Commodore, Full Measure, Giant Stringless Green Pod, Plentiful, Tendergreen, and Tennessee Green Pod.

It is of interest to note that this condition appears to be restricted to certain pole varieties and to a limited number of bush varieties of similar parentage. U. S. No. 5 Refugee and Idaho Refugee have Corbett Refugee as a common parent. Logan, Rival, and Florida Belle all have U.S. No. 5 Refugee as a parent. Pioneer has Blue Lake, a susceptible variety, as a parent. Among the hybrids it is seen that in all cases but one (Full Measure x Curly-top-resistant selection, in which the male parent of the hybrid was not known), one of the parents of the cross was known to be a susceptible variety.

DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES, BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING, BELTSVILLE, MARYLAND

CONDITIONS FAVORING THE APPLE SCAB EPIDEMIC IN EASTERN NEW YORK DURING 1946

D. H. Palmiter

Apple scab assumed epidemic proportions in the Hudson Valley in 1946 as a result of a combination of factors which favored the development of the disease. A heavy carryover of the scab fungus (Venturia inaequalis) on leaves infected in 1945 plus a long cool growing season in 1946 with frequent rains during and following bloom made conditions so favorable for scab infection that many growers had more trouble combating it than in the much wetter season of 1945.

The amount of rainfall occurring during the growing season (from apple greentip to harvest) has ranged during the past ten years from a low of 9.98 inches in 1939 to a high of 30.32 inches in 1946 (table 1). Apple scab control, however, has not been so closely correlated with the amount of rainfall as it has with the number, length, and frequency of infection periods. For example, scab was more easily controlled in 1938 with 27.57 inches of rain but only ten infection periods than in 1937 with 20.98 inches but 15 infection periods. However, even the number of infection periods does not give a true picture of the seriousness of the scab problem unless the amount of primary inoculum carried over on leaves from the previous season is also considered. One reason scab was not more difficult to control in 1940 was the low amount of primary inoculum following the dry season of 1939. Scab would have been a more serious problem in many orchards in 1945 had they not been comparatively free of primary inoculum owing to the dry weather in the summer of 1944.

Although 1945 was extremely wet with almost twice the usual amount of rainfall between April 1 and September 1, many growers had little difficulty in controlling scab with the usual spray program. However, during July, August, and September, 17.75 inches of rain fell during 32 of the 92 days. This resulted in abundant leaf infection in practically all of the McIntosh orchards whether or not the fruit was clean. The result was that there were more ascospores in the air during rain periods in 1946 than there have been for many years. This abundant source of primary inoculum plus favorable weather conditions for scab development resulted in the severe scab epidemic in 1946.

Tree growth started almost as early in 1946 as it did in 1945. Cool weather slowed down development following the delayed dormant stage but even so McIntosh blossoms opened a week earlier than the ten-year average. Trees came into full bloom slowly because of cool wet weather. During the three-week period from the pink application until petalfall, four scab infection periods occurred (table 2) with a total of 2.27 inches of rain. The petalfall application was followed by a

Table 1. Rainfall and number of infection periods in relation to incidence of apple scab on McIntosh fruit in the Hudson Valley from 1937-1946.

Year	Rainfall	Infection periods	Percentage fruit infection			
			Unsprayed trees		Sprayed trees	
	Inches	No.	Scabby orchard*	Clean orchard	Scabby orchard	Clean orchard
1937	21	15	100	32	23	1
1938	28	10	94	36	6	1
1939	10	6	80	6	t#	t
1940	18	12	95	85	1	t
1941	15	13	100	15	t	t
1942	14	13	100		16	t
1943	16	14	100		6	1
1944	15	12	100		1	t
1945	30	19	100		35	
1946	18	16	100		50	

* The amount of primary inoculum was determined by an examination of the over wintered leaves. Orchards with less than 5 percent of the leaves bearing perithecia were considered clean.

t-trace or less than 1 percent fruit infection

heavy rain of 0.92 inches on May 14, a 25-hour wet period on May 17 and 18, and another 12-hour wet period on May 21 and 22. Two 40-hour infection periods occurred between the 10- and 20-day spray applications with a total of 3.95 inches.

Cool weather delayed codling moth activity so the first codling moth cover was applied about 30 days after petalfall (table 2). There was no rain between the first and second cover sprays but two heavy rains favored scab infection between the second and third covers. It was fairly dry between the third and fourth covers but this last spray of the season was followed by a three-day rain which kept the trees wet for 60 hours on July 21, 22, and 23. Other rains on July 31 and August 7 added to the development of late scab infection on both leaves and fruit which showed up in many orchards during McIntosh harvest (September 4-20).

As a result of the general epidemic of apple scab in 1946 the potential primary inoculum for 1947 will probably be as great as or greater than that of 1946. Consequently if growers are to have protection against this disease they will need to take extra precautions. Observations in commercial orchards indicated that the growers who had good scab control in 1946 followed one or more of the following practices:

Table 2. Weather record and spray dates, New Paltz, 1946

Sprays applied	Date		Rainfall inches	Infection periods	Hours leaves were wet	Remarks
	April	1	.28		14	Greentip McIntosh
		2	.05		5	
		15	.33		5	
Prepink		20				Center flower open
		26-27	.78	1st	26	April 24
		29	.22	2nd	24	
Early Bloom		30				
	May	4	.12		10	
		7	.47	3rd	24	Lesions showing on
		11	.20		10	3rd terminal leaf
		12	.48	4th	24	May 10
Petalfall		14	.92	5th	15	Lesions show on 4th
		17	.65	6th	25	to 6th terminal
		21	.38	7th	12	leaf May 14. On 7th-9th May 21
Special Scab		25				
		26-27	2.11	8th	40	On 9th-10th May 26
	June	1-2	1.84	9th	40	On 10th-11th June 1
Special scab		4				Lesions show on 12th
		8	.20	10th	10	to 13th leaf June 4
		11	.59	11th	16	
First cover		14				
Second cover		25				
		27	.65	12th	15	
	July	1	1.00	13th	22	
Third cover		5				
		9	.22		3	
Fourth cover		16				
		21-23	3.87	14th	60	
		31	.22	15th	14	
	Aug.	1	.12		12	
		7	.68	16th	24	
		10	.32		11	
		13	.10		3	
		16	.10		20	
		19	.15		20	
		27	.62		14	

Total rainfall April 1 to Sept. 1-17 :77 inches

1. By thorough spraying in 1945 and including a fungicide in all of the cover sprays maintained foliage relatively free from scab so the local source of primary inoculum was small in 1946.

2. Used Elgetol or other DN material as a ground spray in the spring of 1946 to reduce the amount of inoculum.

3. Applied one or more fungicide sprays or dusts during bloom to replace deposits removed by rains and to keep new growth covered.

4. Reduced the interval between spray applications from the usual 10 days to 5 or 6 at critical periods.

5. Sprayed in the rain when necessary but renewed the coverage if much rain followed.

6. Increased the concentration of sulfur so as to build up a greater deposit on fruit and foliage thus adding to the effectiveness of protection by redistribution during rains.

7. Used liquid lime-sulfur or one of the organic fungicides at a critical time to check scab infections already started.

8. Continued the use of fungicides throughout the cover sprays to prevent late scab infection on the fruit.

HUDSON VALLEY FRUIT INVESTIGATION LABORATORY
COTTAGE ROAD, POUGHKEEPSIE, NEW YORK

CRAZY TOP OF CORN IN KENTUCKY

L. M. Josephson and E. M. Johnson

A striking abnormality of corn, similar to that described by Koehler[1], was observed in U. S. 13 hybrid in Greenup County, Kentucky in 1946. As this abnormality did not come to the attention of the writers until the latter part of August, when several specimens were sent in by County Agent John W. Irvine, it was too late to study the immature stages of plant development.

The characteristics of this abnormality varied considerably. In most cases there was a complete replacement of floral organs by vegetative shoots. The majority of affected plants had a large bunchy vegetative growth replacing the tassel, giving the appearance of a group of multiple ears. Most of the affected plants had considerable

[1]Koehler, Benjamin. Crazy top of corn. Phytopathology 29: 817-820. 1939.

twisting and curling of the leaves immediately below the tassel. On these plants there was a complete absence of ear primordia. On some of the plants a few branches of the tassel bore apparently normal male florets and in some there was considerable branching from the leafy proliferations of the tassel, giving the appearance of an extension of the stalk tissue with vegetative shoots developing at the terminal ends of these branches. These branches were entirely leaf tissue. One plant was found with a normal ear and tassel except that from one sprig of the tassel a large bunchy vegetative growth had developed. Several plants, normal in outward appearance except that the ears were a little large, had ears made up completely of leaf tissue and male florets, some producing apparently viable pollen. Still other plants in the field showed excessive jointing on the upper half of the stalk without the bunch at the top. A small percentage of the plants in the field were dwarfed, not over two feet tall, and were excessively branched. Leafy shoots of the witches'-broom type were developed from the terminal meristems of the branches and the floral organs.

The corn in this field was planted about June 1, and the soil remained cool and wet for a time after planting. The field varied considerably in topography and was located near a river that generally overflows during a heavy rain. The portion of the field nearest the river is low land, with a sandy soil that drains readily. Owing to frequent overflowing the soil is fairly high in fertility. This portion of the field was entirely under water when the plants were about six inches tall and a second time when the plants were a foot tall. In this portion of the field only one affected plant was found. This was in a row of hybrid Ky. 203, but it may have been U. S. 13 mixture as there was no ear on the plant to identify it. Away from the river there is a gradual rise in the elevation of the land. This soil contains more clay and remains saturated for some time after overflowing. This soil showed slight acidity and was very low in available phosphorus and medium in potassium. This portion of the field was entirely under water when the plants were about six inches tall and did not overflow a second time.

In small areas in this portion of the field practically all the plants were malformed while in other limited areas all the plants were normal. Over this entire portion of the field there was an average of 10 percent of the plants affected with crazy top.

In an adjacent field, also planted to U.S. 13 hybrid but from a different source of seed, only one affected plant was found. This field overflowed once when the plants were six inches tall, but it is rather sandy and drained readily. The farmer had grown corn on both of these fields previously and had them overflow in the early stages of development of the corn but had never observed any abnormalities.

Another field planted to Boone County White open-pollinated corn was observed in the vicinity of these two fields. About 90 percent of this field was destroyed by flooding. Of the remaining plants none was found to be affected with crazy top.

To date the cause of this disease is unknown. The witches'-broom type of growth suggests virus. The presence of minor elements or hormones in the flood water resulting from the emptying of waste chemicals into the Ohio River by chemical plants was suggested. No opportunity was afforded to analyze the flood water, but soil from around the affected plants was analyzed for minor and injurious elements. No excessive amounts of these elements was found.

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A SPECIFIC TERM FOR DISEASES CAUSED BY ELSINOË AND SPHACELOMA

Anna E. Jenkins

Fabre and Dunal's (3, p. 53) "anthracnose maculée" (spotted anthracnose) is, of course, the grape malady of which the pathogen was described by de Bary (2) as Sphaceloma ampelinum. In France today (1, p. 363) as formerly (6, p. 204), the word "anthracnose" alone is employed to designate the disease in question. In search of a name by which to refer collectively and specifically to Elsinoë and Sphaceloma diseases (5), the writer is now adopting essentially Fabre and Dunal's qualified term in the plural, viz, "spot anthracnoses". "Anthracnoses" alone would not suffice, because in its broadest definition, as the Arnauds (1, p. 362-363) indicated and as the writer (4) explained more fully "anthracnose" has come also to signify "diseases of other etiology and symptoms."

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DIVISION OF MYCOLOGY AND DISEASE SURVEY

BRIEF NOTES ON PLANT DISEASES

BLACK ROT IN CABBAGE IN FLORIDA

By G. R. Townsend

The disease described as a bacterial soft rot in an earlier report (PDR 30: 477-478) now appears to be black rot [Xanthomonas campestris]. The early season symptoms were as described, but with the advent of cooler weather the symptoms have become typical of black rot as usually described. During the early part of the season when there were frequent driving rains resulting in water-soaked leaves, the symptoms and manner of occurrence corresponded in all details with the symptoms described by E. E. Clayton for the bacterial black rot or blight disease of cauliflower on Long Island. Some recovery was noted during favorable weather but following each rain new infections occurredon the inner leaves of the plants. Recently only marginal lesions on the leaves and vascular discoloration have been observed as evidence of new infection. The affected plants do not recover, but remain stunted or die with stump rot. -- BOX 505, BELLE GLADE, FLORIDA. DECEMBER 19, 1946.

CHECK LIST REVISION

Freeman Weiss

MAIANTHEMUM (LILIACEAE)

MAIANTHEMUM BIFOLIUM DC. (1), M. CANADENSE Desf. (2), and M. DILATATUM (Wood) A. Nels. & Macbride (3). Small perennial herbs of moist woodlands in northern regions: (1) in Europe, (2) in the Northeastern and North Central States, and (3) in Calif. and the Northwest. Sometimes grown in wild gardens and (2) furnishes food for wildlife.

Botrytis sp., botrytis blight. N.Y. (2)
Cercospora subsanguinea Ell. & Ev. See Ramularia.
Phoma maianthemi Pk., Phyllosticta cruenta (Fr.) Kickx. See Sphaeropsis.
Puccinia sessilis Schneid. (O, I), rust. Mass., Mich., Minn., N.Y., Pa., Wis. (2). II and III on Phalaris spp.
Ramularia rubicunda Bres. (Cercospora subsanguinea Ell. & Ev.), leaf spot. Mich., N.Y., Ohio, Pa., Wis. (2); Calif. to Alaska (3). Several authors have pointed out that the valid specific name is subsanguinea, but the combination does not appear to have been formally published.
Sphaeropsis cruenta (Fr.) Archer & Gilman, leaf spot. Alaska, Wash. (3). Various reports of Phoma and Phyllosticta on this host appear to belong here.
Uromyces acuminatus Arth. var. magnatus (Arth.) J.J.Davis (O,I), rust. Mich., N.Y., Wis. (2). II and III on Spartina spp.

MEDEOLA (LILIACEAE)

MEDEOLA VIRGINIANA L., INDIAN CUCUMBER-ROOT. Perennial herb of moist woodlands in the Eastern and North Central States, bearing edible rhizomes.

Medeolaria farlowii Thaxt., stem hypertrophy. Me., Mass., N.J.
Phyllosticta medeolae Dearn. & House, leaf spot. N.Y.

MELANTHIUM (LILIACEAE)

MELANTHIUM PARVIFLORUM (Michx.) S. Wats. (1), BUNCHFLOWER. Perennial herb of wet meadows, sometimes grown in wild gardens.

Puccinia atropuncta Pk. & G.W.Clint. (II,III), rust. N.Car., Tenn. Va.
Septoria allardii Stevenson & Pollack, leaf spot. Va.

MUSCARI (LILIACEAE)

MUSCARI BOTRYCIDES (L.) Mill. (1) and M. COMOSUM Mill. (2), GRAPE-HYACINTH. Hardy spring-blooming bulbs of the Mediterranean region, grown in gardens, sometimes naturalized.

Sclerotium sp. (? S. bulborum (Wakk.) Rehm), dry rot. Mo., Wash. (1)
Ustilago vaillantii Tul., flower smut. Wash. (1), Mass. (2)

NOLINA (LILIACEAE)

NOLINA MICROCARPA S.Wats., BEARGRASS. Woody perennial of arid slopes in the Southwest, sometimes planted for ornament, and may furnish browze for livestock.

Tolyposporella nolinae Clint., leaf smut. Ariz., N.Mex., Tex.

NOTHOSCORDUM (LILIACEAE)

NOTHOSCORDUM BIVALVE (L.) Britt. (1) and N. FRAGRANS (Vent.) Kunth, FALSE-GARLIC (?) Bulbous herb of Southern States, sometimes grown for ornament and of food value to wildlife. (2) naturalized from S. Africa.

Uromyces hordeinus Arth. (O,I), rust. Kans., Okla., Tex. (1). II and III on Festuca and native Hordeum spp.
U. primaverilis Spag. (O,I,III), rust. Ill., Mo., Tex. (1).

Mosaic -- unidentified virus. La. (2).

ORNITHOGALUM (LILIACEAE)

ORNITHOGALUM UMBELLATUM L., STAR-OF-BETHLEHEM (1). Hardy flowering bulb of Mediterranean region, sometimes grown in wild gardens and widely escaped in the Eastern and Northern States. ORNITHOGALUM spp., especially O. thyrsoides Jacq., (2). Tender bulbs of S. Africa grown mostly under glass as pot plants and for cut flowers.

Didymellina ornithogali Jacques (Heterosporium ornithogali Klotzsch ex Cke.), leaf spot. Ill., Pa., Wash. (1)
Sclerotium rolfsii Sacc., southern blight. Calif. (2)
Septoria ornithogali Pass., leaf spot. Conn., Mass. (1)

Mosaic -- virus (Marmor scillearum F.F.Sm. & Brierley) Ala.,

Ornithogalum cont.

Okla., Ore. (2). O. thyrsoides has been shown susceptible to artificial inoculation also with the lily mottle virus, Marmor tulipae Holmes.

PHORMIUM (LILIACEAE)

PHORMIUM TENAX Forst., NEW ZEALAND-FLAX. Coarse perennial of New Zealand, grown in warm regions or under glass for ornament; also furnishes a strong fiber.

Gloeosporium punctiforme Sacc. & Ell., on leaves. Calif., Pa. Said to differ from the conidial stage of Glomerella cingulata (Stonem.) Spauld. & Schrenk, which also has been reported on leaves of greenhouse-grown plants in Md.

Leptosphaeria phormicola Cke. & Harkn., on leaves. Calif.

POLYGONATUM (LILIACEAE)

POLYGONATUM BIFLORUM (Walt.) Ell., SMALL SOLOMON'S-SEAL (1), and P. COMMUTATUM (R.&S.) Dietr., GREAT S. (2). Rhizomatous herbs of woodlands, (1) chiefly in the East, (2) throughout the U.S., more frequent northward; sometimes grown in wild gardens and furnish food for wildlife.

Guignardia polygonati (Schw.) Lindau, on leaves. Pa. (1)

Colletotrichum liliacearum Ferr., usually on dead stems, also ? leaf spot. Reported as Vermicularia polygonati Schw. in Ind. and Me.: probably cosmopolitan.

(Phyllosticta convallariae Pers. ex Seaver; P. cruenta (Fr.) Kickx; P. pallidior Pk.): Sphaeropsis cruenta.

Puccinia sessilis Schneid. (O,I), rust. Ala., Conn., Iowa, Ohio, N.Y., Pa., Wis. (1); Ida., Iowa, Minn., Wis., Wyo. (2). II and III on Phalaris spp.

Sphaeropsis cruenta (Fr.) Gilman & Archer, leaf spot. Conn., Ind., N.Y., Va., Wis. (1); Iowa, Ohio, Wis. (2). See note on this species under Smilacina.

Sclerotinia smilacinae Durand, on rhizomes. N.Y. (1). Is perhaps Stromatinia rabulum (Bull. ex Fr.) Boud.

Urocystis colchici (Schlecht.) Rab., leaf smut. Iowa (2)

Uromyces acuminatus Arth. var. magnatus (Arth.) J.J.Davis (O,I), rust. Ill., Iowa, Minn., Nebr., N.&S.Dak. (2). II and III on Spartina spp.

Mosaic -- unidentified virus. Me. (1)

SANSEVIERIA (LILIACEAE)

SANSEVIERIA spp., (chiefly S. ZEYLANICA Willd. and S. Z. var. LAURENTII Hort.), BOWSTRING-HEMP.

Erwinia spp. (E. carotovora (L.R.Jones) Holland, E. aroideae (Town.) Holland), soft rot. Ariz., Fla., N.J., ? Md.
Fusarium moniliforme Sheldon, leaf spot. Fla., Mo., Wash.
Gloeosporium sansevieriae Verwoerd & du Plessis, leaf spot. Fla., P.R., ? Wash.
Heterodera marioni (Cornu) Goodey, root knot. Fla.

SCILLA (LILIACEAE)

SCILLA spp. (chiefly S. HISPANICA Mill. (S. campanulata Ait.) and S. SIBIRICA Andr.), SQUILL. Spring-flowering bulbs of Europe and S.W. Asia grown in gardens and indoors as pot plants.

Ditylenchus dipsaci (Kuehn) Filip., bulb nematode. Va.
Penicillium gladioli McCul. & Thom., blue-mold rot. On imported bulbs.
Ustilago vaillantii Tul., flower smut. Mass., Wash.

Mosaic -- unidentified virus (? Marmor scillearum F.F.Sm. & Brierley). N.Y.

SMILACINA (LILIACEAE)

SMILACINA AMPLEXICAULIS Nutt. (1), S. RACEMOSA (L.) Desf. (2), and S. STELLATA (L.) Desf. (3), other spp. (4), FALSE SOLOMON'S-SEAL. Rhizomatous herbs of woodlands, (1) in the Pacific Coast States, (2) and (3) distributed nearly throughout the U.S., more frequent northward; of food value to wildlife; (3) sometimes grown in wild gardens.

Cercosporella idahoensis Sacc., leaf spot. On S. sessilifolia (Baker) Nutt. in Ida. See also Ramularia.
Colletotrichum liliacearum Penz., on leaves and stems. Ill., Md., N.Y., Pa., Va., W.Va. (2). Md., Va. (3). Perhaps includes C. smilacinae Tehon & Daniels, on leaves. Ill. (2).
Cylindrosporium smilacinae Ell. & Ev., leaf spot. Colo., Ore. (1); Utah. See also Ramularia.
Guignardia smilacinae Dearn. & House, on leaves. N.Y. (3)
? Heterosporium asperatum Mass., leaf spot. Wyo. (3)
Macrophoma spp. See Sphaeropsis.

Smilacina cont.

Mycosphaerella vagnerae Earle, on stems. Nev. (4)

Phleospora vagnerae Petr., leaf spot. Mont. (4)

(Phyllosticta convallariae Pers. ex Seaver; P. cruenta (Fr.) Kickx; P. smilacina (Pk.) Dearn.); Sphaeropsis cruenta P. vagans Pk., on leaves. Mont. (1); Me., Md., Mo., N.Y., Vt. (2)

Puccinia sessilis Schneid. (0,I), rust. Iowa, N.Y., Okla., Pa. (2); Ida., Kans., Mich., Mont., Nebr., N.&S.Dak. (3); Calif., Ida., Wash. (4)

Ramularia smilacinae J.J.Davis, leaf spot. Mont. (1,3); Wyo. (1); Wash. (2)

R. vagnerae Barth., Calif., Colo. (1)

Sclerotinia smilacinae Durand (? Stromatinia ranulum (Bull ex. Fr.) Boud.) on rhizomes. N.Y. (2)

Septoria smilacinae Ell. &G.Martin, leaf spot. General (2)

Sphaeropsis cruenta (Fr.) Gilman & Archer, leaf spot. Calif., N. Mex. (1); general (2,3). A great variety of names, probably best treated for the present as synonyms of this, have been applied to different stages of this fungus; these include Sphaeropsis smilacina Pk., Phoma s. (Pk.) Sacc., Macrophoma s. (Pk.) Berl. & Vogl., Dothiorella s. (Pk.) Petr. & Syd., Phyllosticta s. (Pk.) Dearn., P. pallidior Pk., and also the similar series on Smilax and other Liliaceae, in which the oldest valid name is Sphaeria cruenta Fr. Ascospora cruenta Strauss (? Melanops c. Petr.) is said to be the ascigerous stage.

Urocystis colchici (Schlecht.) Rabh., leaf smut. Mont. (1,3)

Uromyces acuminatus Arth. var. magnatus (Arth.) J.J.Davis (C,I), rust. Minn., Wis. (2); Colo., Ill., Mont., Nebr., N.&S.Dak., Wis. (3). II and III on Spartina spp.

STENANTHIUM (LILIACEAE)

STENANTHIUM GRAMINEUM (Ker-Gawl) Morong (1) and S. OCCIDENTALE A. Gray (2). Native perennial herbs, (1) in the Southern States, (2) in the Pacific Northwest, sometimes grown in gardens.

Puccinia atropuncta Pk. & G.W.Clint. (II,III). Ga. (1) C,I on Compositae

P. grumosa Syd. & Holw. (C,I,II,III), rust. Ore. (2)

STREPTOPUS (LILIACEAE)

STREPTOPUS AMPLEXIFOLIUS (L.) DC. (1) and S. ROSEUS Michx. (2), TWISTED-STALK. Native woodland perennials, (1) chiefly western, (2) in the East; sometimes grown in wild gardens.

Streptopus cont.
Cercospora streptopi Dearn. & Barth., leaf spot. Wash. (1)
Colletotrichum liliacearum Ferr., on leaves. Wis. (2)
Puccinia sessilis Schneid. (0,I), rust. N.Y. (2)
Tuburcinia clintoniae Komarov, leaf smut. Wis. (2)
Septoria streptopidis Pk. apud M.E.Jones, leaf spot. Mont. (2)

TRILLIUM (LILIACEAE)

TRILLIUM spp., TRILLIUM, WAKE-ROBIN. Perennial herbs of woodlands in numerous similar spp., distributed throughout the U.S.; most of them, especially occasionally T. grandiflorum (Michx.) Salisb., grown in wild gardens.

Colletotrichum peckii (Sacc.) J.J.Davis (probably = C. liliacearum Ferr.), leaf spot. N.Y. to N.Car., Ill. and Minn. C. trillii Tehon is probably the same.
Gloeosporium trillii Ell. & Ev., le f spot. Calif., Ore., Wash.
Heterosporium trillii Ell. & Ev., leaf spot. Wash.
Phyllosticta trillii Ell. & Ev., leaf spot. N.Y., Pa., Wash., Wis.
Sclerotium (? Sclerotinia) sp., on leaves. N.Y., Va.
S. delphinii Welch, stem rot. N.H., Pa.
Septoria trillii Pk., leaf spot. New England to S.Car., Okla., and Wis. S. recurvatum Ell. & Hals., Ind.
Urocystis trillii Jacks., leaf smut. Ida., Ore.
Uromyces halstedii De Toni (0,I), rust. Ill., N.Y. II and III on Leersia spp.

TULIPA (LILIACEAE)

TULIPA GESNERIANA L., TULIP. Spring-flowering bulb of S.W. Asia, long cult. for ornament in gardens and under glass for cutting. Probably covers other Tulipa spp. grown in gardens as T. clusiana Vent., T. kaufmanniana Regel, etc. but specific records are lacking.

Aspergillus spp. (commonly A. niger v. Tiegh.), black mold of bulbs. Cosmopolitan.
Botrytis tulipae (Lib.) Lind, Botrytis blight, fire. General except the far South and Southwest. Distinct at least physiologically from B. cinerea Pers. ex Fr. in the broad sense, which sometimes follows this and other forms of leaf and flower injury.
Ditylenchus dipsaci (Kuehn) Filip., leaf nematode. N.Y.
Erwinia carotovora (L.R.Jones) Holland, soft rot. Wash.
Fusarium sp., basal rot. Okla., Wash.
Gloeosporium thuemenii Sacc. f. tulipae Tompkins & Hansen, anthracnose. Calif.

Tulipa cont.

Penicillium spp., blue-mold rot. Cosmopolitan. P. corymbiferum Westling, P. cyclopium Westling have been identified as active agents of decay.

Phytophthora cactorum (Leb. & Cohn) Schroet., stem rot, flower spot. Calif., Ill., ? Iowa, N.J., Pa., S.Car., Wash.

Pythium intermedium DBy., on roots. ?Calif.

Rhizoctonia solani Kuehn, root and stem rot, secondary bulb rot. Mass., N.Y.

R. tuliparum Whet. & J.M.Arth. (Sclerotium tuliparum Kleb., not Schlecht.), gray bulb rot. Northeastern States, Pacific States.

Rhizopus stolonifer (Ehr. ex Fr.) Lind, mushy rot (usually following sunscald or warm, damp storage). Cosmopolitan.

Sclerotinia sp. (? sclerotiorum (Lib.) DBy.), white bulb rot. Me., Ohio, Wash.

Sclerotium rolfsii Sacc. (including S. delphinii Welch), bulb and stem rot. Calif., Conn., Ga., N.Y., Ore.

Mosaic, breaking -- virus (Marmor tulipae Holmes, Tulipa virus 1 K.M.Sm.; including M. mite Holmes, Tulipa virus 2 K.M.Sm.). General.

Chalking (hard rot, stone disease) -- probably physiological and related to immaturity of or mechanical injury to bulbs when dug, or to storage conditions; often accompanied by Penicillium spp. Occasional, usually in heavy, retentive soils.

Topple, wet stem -- physiological, attributed to excessive warmth and moisture in forcing, perhaps a form of mineral (calcium) deficiency. Occasional in greenhouse culture, rare in the open.

UVULARIA (LILIACEAE)

UVULARIA GRANDIFLORA J.E.Smith (1), U. PERFOLIATA L. (2), and U. SESSILIFOLIA L. (3), BELLWORT. Small perennial herbs of woodlands in the Eastern and Central States, sometimes grown in wild gardens.

Colletotrichum liliacearum Ferr., on leaves and stems. Va. (2,3)

Diplodia uvulariae J.J.Davis. See Sphaeropsis

Guignardia sp., on leaves. Ga. (2)

Phyllosticta oakesiae Dearn. & House, P. uvulariae Gall., and P. cruenta (Fr.) Kickx. See Sphaeropsis.

Puccinia sessilis Schneid. (O,I), rust. Iowa, Minn., Mo., Wis. (1); N.Car. (2); Del., Md., Minn., Miss., N.Y., Wis. (3)

Sphaeropsis cruenta (Fr.) Gilman & Archer, leaf spot. Ill., Iowa, Mo., Va., Wis. (1); Ind. (2); Conn., N.Y., Wis. (3). Included here are reports under various Phyllosticta spp., perhaps also Diplodia uvulariae.

Uvularia cont.
Uromyces acuminatus Arth. var. magnatus (Arth.) J.J.Davis (O,I), rust. Miss., Wis. (3)

VERATRUM (LILIACEAE)

VERATRUM CALIFORNICUM Durand (1), V. VIRIDE Ait. (2), other spp. (3), FALSE HELLEBORE. Tall perennials of wet meadows and woodlands, (1) in the Pacific States, (2) chiefly in the Eastern and Central States; sometimes grown in wild gardens and of food value to wildlife.

Ascochyta veratrina Ell. & Ev., leaf spot. Wash. (1)
Colletotrichum liliacearum Ferr., on leaves and stems. Del., N.J. (2)
Cercosporella terminalis Pk., leaf spot. N.Y. (2). C. veratri Pk., N.Y. (2)
Cylindrosporium veratrinum Sacc. & Wint., leaf spot. N.Y., Va. (2); Utah (3)
Diplodia veratri Earle, on stems. Colo., Nev. (3)
Leptosphaeria veratri Earle, on stems. Colo. (3)
Marssonina veratri (Ell.&Ev.) Magn. on leaves. Colo., Wash. (1)
Phyllachora melanoplaca (Desm.) Sacc., tar spot. N.Y. (2)
Phyllosticta melanoplaca Thuem., leaf spot. Calif., Conn. (2); Colo., Ida., Utah (3)
Puccinia atropuncta Pk. & G.W.Clint. (II,III), rust. Tenn., W.Va. (2); Mo., N.Car., Okla., Tenn., Va. (3). O and I on compositae
P. veratri (DC.) Duby (II,III), rust. Calif., N.Mex., Ore., Wash. (1); Conn., N.H., N.J., N.Y., Pa., Va., W.Va. (2); Colo., Ida., Mont. (3). O and I on Epilobium spp.
Pyrenopeziza sp., on stems. Colo. (3)
Sclerotium sp., on stems Alaska (3)
Sclerotinia veratri Cash & Davidson, on stems. Colo. (3)

XEROPHYLLUM (LILIACEAE)

XEROPHYLLUM ASPHODELOIDES (L.) Nutt. (1) and X. TENAX (Pursh) Nutt. (2), TURKEY-BEARD, BEARGRASS. Coarse perennials of dry woodlands or open ground, (1) in the Eastern Staes, (2) in the Pacific and Rocky Mountain States; sometimes grown in wild gardens, the leaves used in basketry.

Asterina xerophylli Ell., on old leaves. N.J. (1)
Hendersonia xerophylli Ell., on old leaves. N.J. (1)
Leptosphaeria hysterioides Ell. & Ev., on old leaves. Ore., Wash., ? Ida. (2). L. xerophylli Ell., N.J. (1)

Veratrum cont.
Leptostroma xerophylli Petr., on leaves. Ida. (2)
Mycosphaerella xerophylli Syd., on dead stems. Ida. (2)
Pleospora xerophylli Petr., on old leaves. Ida. (2)
Puccinia atropuncta Pk. & G.W.Clint. (II,III), rust. Miss. (1)

YUCCA (LILIACEAE)

YUCCA spp. (arborescent), as Y. ALOIFOLIA L., ALOE Y., SPANISH BAYONET (1); Y. BREVIFOLIA Engelm., JOSHUA-TREE (2); Y. ELATA Engelm., SOAPTREE (3); other spp. (4). Woody-stemmed, non-frost-hardy plants of arid ground; (1) in the Gulf States where it is grown for ornament, (2) and (3) in the Southwest, the former sometimes grown in gardens, the latter furnishing food for livestock and wildlife, also fiber, soap and honey.

Anthostomella nigro-annulata (Berk.&Curt.) Sacc., on dead leaves. S.Car. (1)
Cercospora concentrica Cke. & Ell., leaf spot. Tex. (2)
Coniothyrium concentricum (Desm.) Sacc., leaf spot. General (1)
Diplodia circinans Berk. & Br., on leaves. ? Fla. (1)
?Fusarium lateritium Nees ex Fr., on leaves. Fla. (1). Conidial stage of Gibberella baccata (Wallr.) Sacc.
Kellermannia anomala (Cke.) Hoehn. (K. yuccaegena Ell.&Ev.), leaf blight. Fla. (1), Calif. (2). K. major Dearn. & Barth., N.Mex. (3).
Phyllosticta sp. (? yuccogena Ell. & Ev.), leaf spot. Tex. (2). P. maculicola Hals., N.Mex. (3)
Pleospora thuemeniana Sacc., on old leaves. Ga., Miss., S.Car. (1)
Sphaerodothis pringlei (Pk.) Theiss. & Syd., on leaves. Fla. (1), Calif. (4)
Stagonospora gigantea Heald & Wolf, leaf spot. Calif. (4)
Stomatogena agaves (Ell.&Ev.) Theiss. & Syd., on leaves. Calif. (4)
Torula maculans Cke., leaf mold. Calif. (2). T. herbarum Lk. ex Cda., La. (1)

YUCCA spp. (non-arborescent), as Y. FILAMENTOSA L., ADAMS-NEEDLE (1); Y. GLAUCA Nutt., SOAPWEED (2); Y. GLORIOSA L., MOUND-LILY, SPANISH BAYONET (3); other spp. (4). Coarse perennials, acaulescent or short-trunked, mostly frost-hardy; (1) and (3) in the Southeastern and Gulf States, (2) in the Plains States except the far North; grown for ornament in gardens and as pot plants.

Aecidium yuccae Arth. (0,I), rust. Nebr. (2) II and III unknown.
Alternaria tenuis Nees ex Cda. and ? A. tenuissima (Fr.) Wiltsh., secondary leaf rot. W.Va. (1)

Yucca cont.

Anthostomella nigro-annulata (Berk.&Curt.), on dead leaves. Fla., Ga., N.Car. (1)

Cercospora concentrica Cke. & Ell., leaf spot. Conn., N.J., Okla., Tex. (1); Iowa (3); Ga., Tex., P.R. (4)

C. floricola Heald & Wolf, flower blight. On Y. rupicola Scheele, Tex.

Colletotrichum liliacearum Perr., on leaves. N.J., Pa., W.Va. (1)

Coniothyrium concentricum (Desm.) Sacc., leaf spot. General (1, 2,3)

Cylindrosporium angustifolium Ell. & Kell., leaf spot. Kans., Miss., Okla. (2); Tex. (4)

Diaporthe arctii (Lasch) Nits., on leaves. Ga. (1)

Didymosphaeria clementsii Sacc. & D.Sacc., on dead leaves. Colo., Wyo. (2). D. yuccogena (Cke.) Sacc., Calif. (2)

Diplodia circinans Berk.&Br., leaf spot. Tex. (4). Conidial stage of Botryosphaeria agaves (P.Henn.) Syd.

Epicoccum asterinum Pat., leaf spot. Tex. (4)

Gloeosporium yuccogenum (yuccaegenum) Ell.&Ev., leaf spot. Mo. (1), Tex. (4)

Heterodera marioni (Cornu) Goodey, root knot. Ore. (4)

Kellermannia anomala (Cke.) Hoehn. (K. yuccaegena Ell. & Ev.), leaf blight (secondary). Kans., Nebr., Okla., Tex. (1); general (2); Miss. (3); Calif., Tex. (4). K. major Dearn. & Barth., Calif. (4)

Leptosphaeria filamentosa Ell.&Ev., on leaves. N.J. (1), Tex. (4). L. obtusispora Speg., Ala., Miss. (3)

Mycosphaerella sphaerelloides (Sacc.) Petr., on old leaves. Okla., Wash. (2). Mycosphaerella sp. (Sphaerella yuccæ Ell.&Ev., on leaves. Ala. (1), N.Dak. (2)

Neottiospora yuccifolia J.G.Hall, leaf spot. Ga., Wash. (4)

Pestalozziella yuccae Karst., secondary leaf spot. Tex. (4)

Phaeosphaerella weiriana Petr., on old leaves. Wyo. (2)

Phomatospora argyrostigma (Berk.) Sacc., on old leaves. Ala., Va. (1); Ohio (4). P. disrupta (Berk. & Curt.) Cke., Miss. (1). Probably Physalospora.

Phragmodothis conspicua (Griff.) Theiss.&Syd., on old leaves. Colo., Mont. (2). ? P. circumscissa.(Tracy & Earle)Theiss&Syd.

Phyllosticta yuccogena (yuccaegena) Ell. & Ev., on leaves. Ala., Fla. (4)

Physalospora uvispora (Cke.) Sacc., on stems. Tex. (4)

Sclerotium rolfsii Sacc., stem rot. Md. (1)

Septoria yuccae Sacc., on leaves. Pa. (3). Septoria sp., Ga., N.Car., Tex. (4)

Sphaeropsis filamentosa Cke., on old leaves. S.Car. (1)

Stagonospora macrospora (Dur. & Mont.) Sacc., on leaves. Colo. (4)

Sphaerodothis pringlei (Pk.) Theiss & Syd., on leaves. Ariz., Calif., N.Mex. On Y. macrocarpa Engelm.

Yucca cont.

Systremma sp., on leaves. Colo. (2). Reported as Phyllachora? yuccae Ell. & Ev.

Torula maculans Cke., leaf mold. Ariz., Calif., S.Car., Tex., Wyo. (4)

ZIGADENUS (ZYGADENUS) ; LILIACEAE

ZIGADENUS ELEGANS Pursh (including Z. glaucus Nutt.).(1), Z. GRAMINEUS Rydb. (2), Z. VENENOSUS S. Wats. (3), other spp. (4), DEATH-CAMAS, ZYGADENE. Perennial herbs of meadows and plains, (1) distributed nearly throughout the U.S., (2) and (3) in the Rocky Mountain and Pacific States; all poisonous to some degree, (2) and (3) especially so, and a frequent cause of stock poisoning; some spp. occasionally grown for ornament.

Puccinia atropuncta Pk. & G.W.Clint. (II,III), rust. Iowa, Mo., N.Dak., Wis. (1). O and I on Compositae.

P. grumosa. Syd. & Holw. (O,I,II,III), rust. Colo., Mont., Wyo. (2); Colo. (4)

Urocystis flowersii Garrett, leaf smut. Utah (1)

Uromyces zygadeni Pk. (O,I,II,III), rust. Colo., Iowa, Mont., Wyo. (1); Mont., Wyo. (2); Mont., Tex., Wash., Wyo. (3); Calif., Colo., Kans., Nev., Tex., Utah (4)

(End of Liliaceae)

LINUM (LINACEAE)

LINUM spp. (flowering), as L. FLAVUM L., (1) perennial of southern Europe, and L. GRANDIFLORUM Desf. (2), annual of north Africa; both spp. grown for ornament.

Heterodera marioni (Cornu) Goodey, root knot. Calif. (1)

Rhizoctonia solani Kuehn, damping off. Ill. (2)

Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Calif. (1)

LINUM spp. (native), as L. LEWISII Pursh, PRAIRIE FLAX (1); L. RIGIDUM Pursh (2); L. SULCATUM Riddell (3); and L. VIRGINIANUM L., WOODLAND F. (4). Annual (3) or perennial (1,2,4) herbs of the prairies and western plains (1,2,3) or of woodlands in the East (4); of food value to wildlife.

Cercospora lini Ell. & Ev., leaf spot. Tex. (1,3); Del. (4)

Melampsora lini (Pers.) Lév. (O,I,II,III), rust. N.Dak. to Tex., Calif. and Alaska (1); Kans., Mont., Nebr., N.Dak. (2); Iowa, Nebr., N.&S.Dak., Wis., Wyo. (3); N.Y. (4)

Linum cont.

Peronospora lini Schroet., downy mildew. Iowa (3). Described as P. lini Ell. & Ev., identity with the European sp. not confirmed.

Phymatotrichum omnivorum (Shear) Dug., root rot. Tex. (1,2,3)

Pyrenopeziza californica Sacc., on stems. Calif. (1)

Rhizoctonia solani Kuehn, root rot. Tex. (1,3)

LINUM USITATISSIMUM L., COMMON FLAX. Annual of supposed Asiatic origin (or perhaps derived from L. augustifolium Huds. of the Mediterranean region), cult. since antiquity for fiber and oil; in the U.S. grown chiefly for seed in Minn., N.&S. Dak., Mont., Kans., Iowa and Calif.

Alternaria spp., boll disease, leaf spot, seedling blight. Minn., N.Dak., Tex., Wash. Sometimes reported as A. tenuis Nees ex Cda., and probably secondary, though pathogenic races (to seedlings) have been demonstrated; the latter may belong to A. linicola Groves & Skolko, identified in Canada but not yet reported in the U.S. See also Pleospora.

Botrytis cinerea Pers. ex Fr., boll rot. Calif.

Colletotrichum lini (Westerdijk) Toch. (C. lini Bolley, C. linicolum Pethyb. & Lafferty), anthracnose, seedling blight. Ariz., Calif., Iowa, Mich., Minn., Mont., N.&S.Dak., Tex., Wis.

Curvularia geniculata (Tracy & Earle) Boed., root rot. Mich. C. inaequalis (Shear) Boed., Ill.

Cuscuta sp., dodder. Kans., Mo., Tex. C. epilinum Weihe, N.J., Ohio, Pa.

? Erysiphe cichoracearum DC. (conidial stage), powdery mildew. Minn.

Fusarium equiseti (Cda.) Sacc., secondary root rot. N.Dak.

F. oxysporum Schlecht. f. lini (Bolley) Snyder & Hansen, wilt, "flax sickness." General, but largely overcome by resistant vars. of flax.

F. scirpi Lambotte & Fautr. var. acuminatum (Ell. & Ev.) Wr., secondary root rot. N.Dak.

Helminthosporium sp. and H. sativum Pam., King & Bakke, seedling blight. Minn.

Heterodera marioni (Cornu) Goodey, rootknot. Tenn.

Melampsora lini (Pers.) Lév. (C,I,II,III), rust, sometimes stem canker. General. The race on common flax is distinguished as f. sp. liniverda Körn., the physiologic races comprising it do not in general infect native Linum spp., nor do the races on these infect common flax.

Mycosphaerella linorum (Wr.) Garcia Rada, pasmo, rust-blotch. Ariz., Calif., Iowa, Kans., Mich., Minn., N.&S.Dak., Tex., Wis. Distinctness from M. linicola Naoumoff, an earlier name, awaits confirmation.

Linum cont.

Penicillium sp., secondary root rot. Wash.

(Phlyctaena linicola Speg.): Mycosphaerella linorum

Phoma terrestris Hansen, secondary root rot. Minn., N.&S.Dak.

Pleospora herbarum (Pers. ex Fr.) Rab., (Stemphylium botryosum Wallr.), on seed. Minn., N.Dak.

Polyspora lini Lafferty, browning, stem-break. Iowa, Mich., Minn., N.Dak., Ore. Recent studies by N.H.White in Australia indicate that the fungus widely known under this name is a variety, lini, of Pullularia pullulans (DBy.) Berkhout (= Anthostomella pullulans F.T.Bennett), a cosmopolitan saprophyte; the stem-browning ascribed to it may be primarily an effect of adverse environmental factors.

Pythium spp., root rot, seedling blight. Ariz., Iowa, N.Dak. P. aphanidermatum (Edson) Fitz. identified in Ariz., P. debaryanum Hesse in Iowa.

Rhizoctonia solani Kuehn, damping off, root rot. Calif., Iowa, Minn., N.Dak., Tex.

Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Ariz., Calif., Ore., Tex.

Sclerotium delphinii Welch, stem rot. Conn. S. rolfsii Sacc., Tex.

(Septoria linicola (Speg.) Garassini): Mycosphaerella linorum.

Thielaviopsis basicola (Berk. & Br.) Ferr., root rot. Minn., N.Dak.

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Calif.

Chlorosis -- physiological, attributed to excessive soil moisture or alkalinity. Minn., N.Dak.

Heat canker -- stem injury at soil level caused by high temperature. Occasional throughout the Plains States, also Calif., Ore., Wis.

(End of Linaceae. Next family: Malvaceae)

DIVISION OF MYCOLOGY AND DISEASE SURVEY

DECEMBER WEATHER

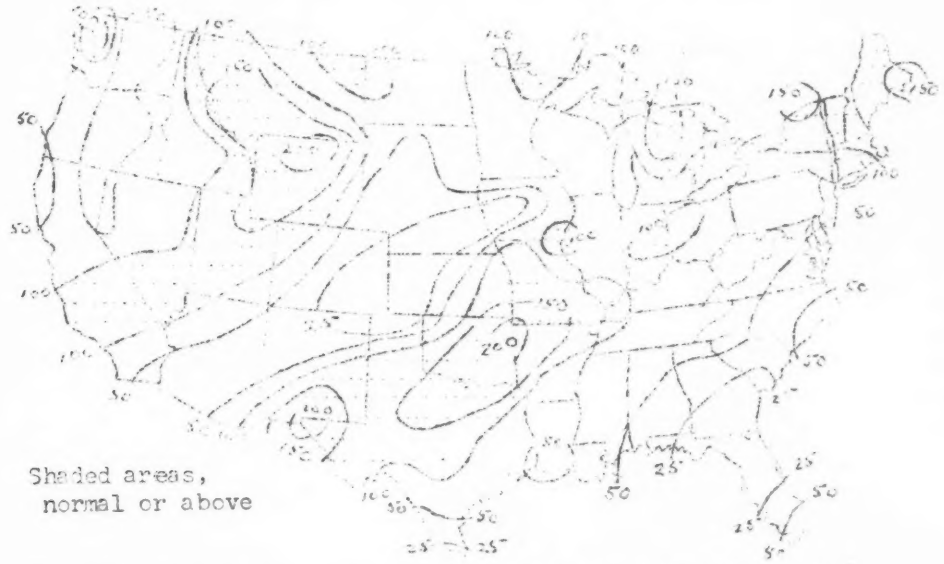
(From U.S. Department of Commerce, Weather Bureau, Weekly Weather and Crop Bulletin for the week ending January 7, 1947).

Map I shows that December 1946 averaged much warmer than usual over practically the entire country, the exceptions being mostly near normal in northern border districts and Pacific coastal sections. The plus anomalies exceeded 5° quite generally from the middle Atlantic coast westward over the middle portion of the country almost to the Pacific States, with many stations in Colorado, southwestern Wyoming and some adjacent areas reporting monthly departures of over 8° above normal.

The month of December 1946, as indicated by Map II was wetter than usual from the middle Rio Grande Valley northeastward over western and north-central Texas, eastern Oklahoma, northern and western Arkansas, and most of Missouri, and in western Montana, Wyoming, Utah, south-central California, scattered sections of the Lake region, and the far Northeast. Totals for the month were half again their normal values in north-central Texas, western Arkansas, Wyoming, and southwestern Montana.

Less than half the usual precipitation occurred in south Atlantic and east Gulf coastal plains, the middle portion of the western Plains, and in most of Colorado, Arizona, northern New Mexico, eastern Washington, eastern Oregon, and sections of northern California. The drier areas were in Florida, Georgia, southern South Carolina, central Iowa, extreme southern Nebraska, western Kansas, and eastern Colorado, with less than one-fourth the usual amounts.

Map I. Departure of mean temperature from the normal, December 1946.



Map II. Percentage of normal precipitation, December, 1946.